

PROJECT FINANCING FOR BTO SECTION OF INCHEON BRIDGE PROJECT



Dae-Seop Roh
Partner, CPA
Ernst & Young Korea
Project Financing Advisor
Dae-seop.roh@kr.ey.com



Bong-Soo Jang
Director
Planning/Management Director
Incheon Bridge Co. Ltd.
bongsoo.jang@incheonbridge.com

Abstract: This document provides information and insight on project financing structure of Incheon Bridge PPI project in Korea. The BTO concession agreement was made in June, 2003 between the Government of the Republic of Korea and Incheon Bridge Corporation Inc.(formerly, KODA Development Company Limited, the Concessionaire) in relation to the Incheon Second Bridge Private Investment Project and in accordance with the Act on Private Participation in Infrastructure and the Annual Plan of the Government for Private Participation in Infrastructure in Korea. The BTO project financing was agreed and signed between the Concessionaire and the syndicated lenders in June, 2005.

Keywords: PPI, BTO, BTL, project financing, funding structure, senior debt, subordinate debt, MRG (minimum revenue guarantee), termination payment, equity, project financing document, syndication.

1. PPI SYSTEM OVERVIEW IN KOREA

1.1 PPI Framework Hierarchy

Participation Investment in Infrastructure (“PPI”) System involves the public and the private sectors working in partnership to provide infrastructure and public services; a concept analogous to the term what is internationally known as “Private investment in Public Infrastructure” or “Public-Private Partnerships”. PPI combines the responsibilities as design, building, financing and operating in a single contract and transferring part of the risks and responsibilities to the private sector, PPI projects realize “value for money” with less projects costs and improved service quality compared to the conventional public procurement. PPI system encourages the private sector to utilize its professional skills, creativity and innovation which can spread to the public sector.

The PPI framework in Korea is based on the Act on Private Participation in Infrastructure and its Enforcement Decree. The hierarchy of Korean PPI framework is summarized as follows;

Table 1: PPI Framework Hierarchy

Items	Descriptions
PPI Act	The principal components of the legal framework of PPI Project Directs Ministry of Planning and Budget (“MPB”) and Public and Private Infrastructure Investment Centre (“PIMAC”) to issue Annual PPI Plan
Annual PPI Plan	Annual PPI Plan provides detailed and practical guidelines for implementing PPI projects: - The yearly focus of PPI Policy - Details in PPI projects implementation procedure - Financing and re-financing guidelines - Risk allocation

PPI Guidelines	<p>PPI Guidelines are provided to deliver transparency and objectivity in each PPI project implementation:</p> <ul style="list-style-type: none"> - Guidelines for Request for Proposal preparation - Standard output specification by facility - Guidelines for tender evaluation
----------------	---

1.2 BTO and BTL Scheme

The Korean PPI project procurement is done through two types: solicited project and unsolicited project. Most prevalent schemes employed to implement Korean PPI projects include Build-Transfer Operate scheme (“BTO”) and Build-Transfer-Lease (“BTL”) as follows;

- BTO (Build-Transfer-Operate) Scheme: Ownership of the infrastructure facility is transferred to the central or central local government upon completion of construction, and the concessionaire is granted the right to operate the facilities and gains return on investment by collection the user fees for a specified period of time
- BTL (Build-Transfer-Lease) Scheme: Ownership of the infrastructure facility is transferred to the central of local government upon completion of construction, and the concessionaire is granted the right to operate the facility and receives government payment for a specified period of time

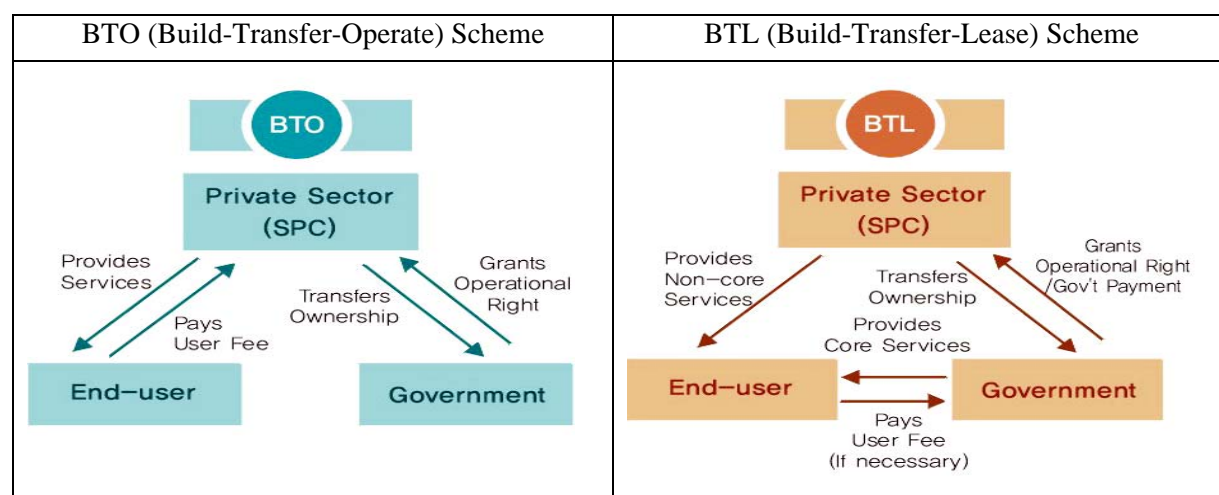


Figure 1: BTO and BTL

1.3 Government Support

As a measure of incentivizing participation in PPI projects, the government may provide support variety of forms to mitigate risks and enhance returns, subject to individual negotiation for each project, as exemplified below:

Table 2: Governmental Support

Type	Descriptions
Acquisition of Land	<ul style="list-style-type: none"> • Concessionaires are granted land expropriation right • Concessionaires are allowed to use national or public property free of charge, or at lower price • Concessionaires can purchase national or public property if necessary
Financial Supports	<ul style="list-style-type: none"> • Government may grant subsidy to concessionaire when the level of risk is unacceptable to private sectors (e.g. toll rates).

	<ul style="list-style-type: none"> • Minimum Revenue Guarantee (“MRG”) designed to support project cash flows up to a certain percentage of projected annual revenues agreed in the concession (project) agreement between concessionaire and relevant government authority.
Tax Benefits	<ul style="list-style-type: none"> • Various preferential tax rates are applied to PPI projects including the following: • 0% tax on VAT for construction services of revertible infrastructure facilities. • Tax reduction on infrastructure bon
Compensation on Termination	<ul style="list-style-type: none"> • If a contract is terminated during the concession term due to force-majeure events, the government provides compensation to concessionaire in exchange for the concession right of the particular facility as stipulated in the PPI Act.

2. INCHEON BRIDGE PROJECT OVERVIEW

2.1 Concession Agreement

In February 2000 AMEC Inc. (“AMEC.”) submitted an unsolicited proposal the Korean Government (the Government) in accordance with the Act on Private Participation in Infrastructure (PIA) and the Annual Plan of the Government for Private Participation in Infrastructure in Korea. In accordance with the PIA and subsequent to a public notice made on 9 April 2001 to invite third party proposals, on 2 July 2001, the Government selected AMEC Inc. as “Potential Concessionaire” for this Project.

AMEC Inc and the Incheon Metropolitan City Government (“Incheon City”) have together established the Concessionaire. The Government has entered into a concession agreement (the “Concession Agreement”) with KODA Development Company Limited and designated KODA Development Company Limited as the Concessionaire of the Project on 13 June 2003 in accordance with the PIA, the Enforcement Decree of the PIA and the Annual Plan

The amended and restated concession agreement (the Agreement”) was agreed and made on May, 2005 between the Government of the Republic of Korea (the “Government”) and KODA Development Company Limited (the “Concessionaire”). The ARCA is summarised as follows;

Table 3: Summary of Concession Agreement (only for the Private-Investment Section)

Items	Descriptions
Project Name	Incheon Bridge PPI
Concessionaire	Incheon Bridge Co., Ltd. (Formerly, KODA Development Co., Ltd)
Government Authority	MLTM (Ministry of Land, Transport and Maritime Affairs) of the Korean Government
Business Type	BTO (Build Transfer Operation)
Project Location	Incheon International Airport ~ Incheon Songdo Int’l City
Project Scale	12.34Km – long expressway crossing with 6 lanes
Concession Right	<p>The Concessionaire is responsible for designing, building and operating the toll bridge. The ownership of the toll bridge shall be transferred to the Government upon successful construction completion.</p> <p>The Government grants to the concessionaire the right to occupy, use and make a commercial operation from the toll bridge, and the right to</p>

	collect tolls from users of the toll bridge. The right to toll is an exclusive right granted to the concessionaire.
Construction Period	2005. 6 - 2009. 10
Operation Period	2009.10- 2039. 10 (30 years since commercial operation)
Toll rates	The base toll Fee is determined based on the PPI formula. This base fee is subject to annual CPI indexation.
MRG (Minimum Revenue Guarantee)	80% during first 15 years since commercial operation. For the first 15 years, in case that revenue from tolls is less than 80% of the estimated toll revenue, the Government will subsidise the concessionaire. Instead, during the first 15 years, in case that revenue is greater than 120% of estimated toll revenue, the concessionaire shall refund the difference between the actual toll revenue and 120% of estimated toll revenue.
Termination Payment	In the event of an occurrence of termination due to default event caused by the concessionaire, the government or the force majeure, the concessionaire is entitled to receive the termination compensation from the Government. The termination compensation payment is determined based on the certain formula stipulated in the Concession Agreement. .

2.2 Total Project Cost

Total project cost of the Project is amounted to 1,096 billion won (January 1, 2000 constant price basis), consisting of the private investment of 572 billion won and the government subsidy of 524 billion won. Construction cost takes the largest portion (about 87.5%) of the total project cost among the project cost items.

Table 4: Total Project Cost

(Billion in KRW)		
Item	Amount	Proportion
1. Survey	5	0.5%
2. Design	16	1.5%
3. Construction	939	85.7%
4. Incidence Cost	100	9.1%
5. O&M Facilities	12	1.1%
6. Operational Reserve	24	2.2%
Total Project Cost(1~7)*	1,096	100.0%
Government Subsidy*	572	52.2%
Total Private Project Cost*	524	47.8%

* Total private project cost, government subsidy and total project cost are stated at the January 1 2000 constant (real) price basis, which does not include the inflation adjustment (contingency) and interest during construction.

2.3 Operation Cost

Operation Cost of the Project for 30 years period is amounted to 436 billion won (January 1, 2000 constant price basis). As shown the table below, O&M cost and Maintenance cost consist of a large percentage, together 81.5%, of the operation cost of the Project.

Table 5: Total Project Cost

(Billion in KRW)

Item	Total Amount	Proportion
1.O&M Cost	176	40.3%
2. Maintenance Cost	180	41.2%
3. G&A Cost	74	17.0%
4. Facility Cost	68	1.5%
Total	436	100.0%

2.4 Traffic volume

For the period from 2009 to 2039, Traffic volume is expected to increase from 34,515 vehicles per day in early stage of operation to 89,335 vehicles per day in 2038. The small vehicle type is assumed to occupy 81.4% of total traffic with the first rank among four categories. Medium will come after Small with 13.5% share.

Table 6: Traffic Volume

(Vehicles/day)

Year	Light vehicle	Small	Medium	Large	Total
2009	1,139	28,078	4,651	647	34,515
2014	1,526	37,612	6,230	867	46,235
2019	1,927	47,514	7,870	1,095	58,406
2024	2,237	55,155	9,135	1,271	67,798
2029	2,543	62,685	10,383	1,444	77,055
2034	2,773	68,366	11,323	1,575	84,037
2038	2,948	72,675	12,037	1,675	89,335
Proportion	3.3%	81.4%	13.5%	1.9%	100%

2.5 Toll Fee

Toll is categorized into four different types. For instance, toll fee for small vehicle type would be 4,600 won including VAT (January 1, 2004 constant price basis). The actual toll rate will be increased based on the CPI adjustments actually incurred since January 1, 2004

Table 7: Toll fee (Single Korean Won)

Type	Descriptions	Toll fee
Light	– Cars with engine displacement at less than 800cc	KRW 2,300
Small	– Passenger cars – 16 person or less vans – Less than 2.5 ton cargo truck	KRW 4,600
Medium	– 17 person or more bus – 2.5 ton ~ less than 10 ton cargo truck	KRW 7,820
Large	– 10 ton or more cargo truck	KRW 10,120

The toll fee above is determined based on the net present value discounted at the project real return. The formula as follows;

$$\sum_{i=0}^n \frac{CC_i}{(1+r)^i} = \sum_{i=n+1}^N \frac{OR_i - OC_i}{(1+r)^i} + \sum_{i=0}^N \frac{ANR_i}{(1+r)^i}$$

N: completion date of construction
 N: expiration date of the concession agreement
 CCI: construction costs yearly during construction period (excluding government subsidy)
 ORi: operation revenue
 OCi: operation cost
 ANRi: net revenue from subsidiary business
 r: project real return

3. PROJECT FINANCING STRUCTURE

3.1 Funding Requirement and Structure

The funding requirement of the Project consists of KRW 164 billion won in equity (representing 18% of total private investment cost) and 733 billion won in debt (representing 80% of total private investment cost) from commercial lending institutions, and about 21% of such debt is procured by subordinated loan.

Table 8: Funding Source

(Billion in KRW)		
Source	Amount	Proportion
Equity (A)	165	18 %
Subordinated Loan (B)	155	17 %
Senior Loan (C)	578	65 %
Total Private Investment (D=A+B+C)	897	100 %
Government Subsidy(E)	768	
Total Funding Amount(F=D+E)	1,666	

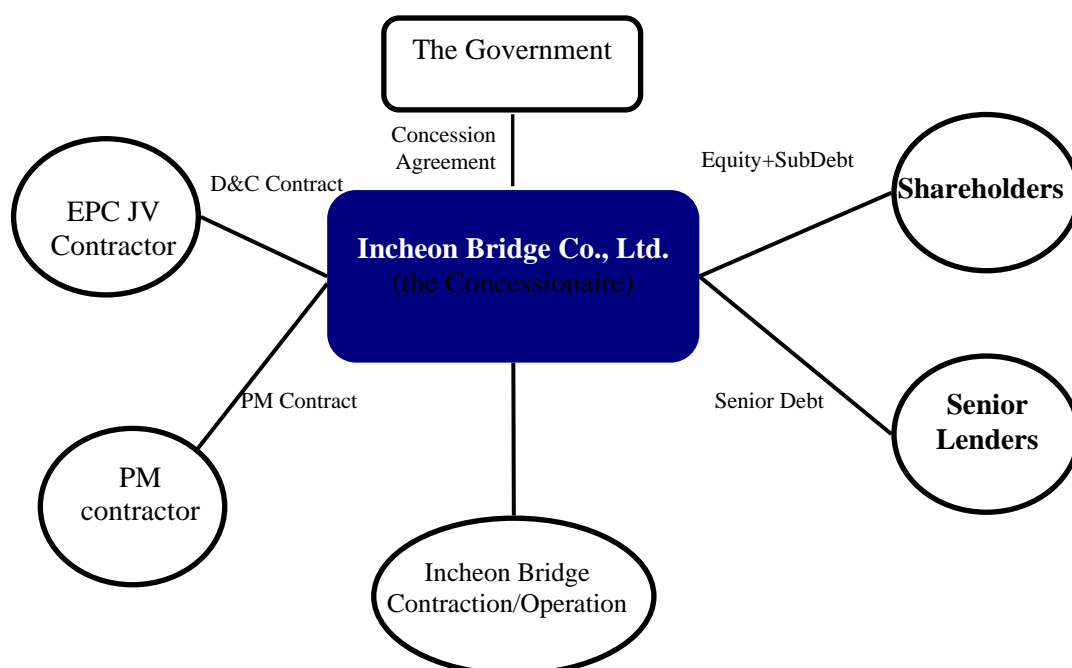


Figure 2 : Simplified Contractual Structure

3.2 Equity and Shareholders

The concessionaire project company was originally established between Incheon City Government as public sector, AMEC as project manager upon the concession agreement. With the participation of financial investors at financial close, the shareholders composition was changed and the shareholders' equity commitment is 165 billion until the completion. The change of shareholders and their shareholdings are as following table;

Table 9: Shareholders' ratio

Shareholders	Shareholders' ratio		
	SPC set-up (2001)	Financial Close (July, 2005)	Completion (October, 2009)
AMEC	51 %	47 %	23%
Incheon City Government	49 %	18 %	6 %
Financial investor A	-	22%	41 %
Financial investor B	-	6 %	15 %
Financial investor C	-	6 %	15 %
Total	100 %	100 %	100 %

3.3 Subordinated loan lenders

Incheon Bridge plan to procure subordinated loan form its shareholders, representing 14.2% of total private investment cost as follows;

Table 10: Subordinated loan lenders

(Billion in KRW)			
Sub-Loan Lenders	Commitment Amount	Ratio	Remarks
Financial investor A	89	58 %	Infrastructure fund
Financial investor B	33	21 %	Bank
Financial investor C	33	21 %	Bank
Total	155	100 %	

Table 11: Loan Agreement

Terms	Descriptions
Tenor	21 years (including 5 year grace period)
Interest Rate	Construction: 12% p.a. fixed Operation: 3 yr AA- + 6% pa (3 yr reset)
Commitment fee	0.2% p.a. on daily undrawn balance
Repayment	Scheduled to be equally repaid for 6.5 years after 14.5 year grace period.

Payment restriction on principal and interest	<p>Principle payment restrictions include:</p> <ul style="list-style-type: none"> - CDSCR above 1.3 for 2 consecutive semi-annual calculation periods - 50% of the outstanding Senior Loan shall have been repaid - No Standby Loan outstanding - Debt Equity Ratio not greater than 3.0 to 1.0 - Debt Service Reserve Account fully funded <p>Interest payment restrictions include:</p> <ul style="list-style-type: none"> - CDSCR above 1.3 for 2 consecutive semi-annual calculation periods - Debt Service Reserve Account fully funded - No amount due and payable under the Standby Loan and no unpaid Standby Loan Settlement Amount
---	--

3.4 Senior Loan Lenders

The syndication of lenders of the Incheon Bridge project and senior loan terms are summarized as follows;

Table 12: Senior loan lenders

(Billion in KRW)			
Senior Loan Lenders	Commitment Amount	Ratio	Remarks
Syndicated Lender A	188	33 %	Infrastructure fund
Syndicated Lender B	150	26 %	Bank
Syndicated Lender C	150	26 %	Bank
Syndicated Lender D	30	5 %	Insurance company
Syndicated Lender E	30	5 %	Insurance company
Syndicated Lender F	30	5 %	Insurance company
Total	578	100 %	

Table 13: Loan Agreement

Terms	Descriptions
Tenor	19 years (including 5 year grace period)
Interest Rate	Construction: 8% p.a. fixed Operation: 3 year AA- + 1.9% p.a. (1 year reset)
Commitment fee	0.2% p.a. on total undrawn balance
Repayment	Quarterly repayment (heavy-tailed) to be repaid during 14 years after 5 year grace period.

3.5 Risk and Mitigation

The PPI project has its potential risks in connection with construction and operation. The risk mitigation in is summarised as follows;

Table 14: Risk and Mitigation

Risk	Mitigation
Construction Risk	<p>Strong EPC consortium contract</p> <p>Fixed nominal price lump-sum contract</p> <p>World-class project management</p> <p>Experienced construction supervisors</p> <p>Lenders' technical advisor</p> <p>Full coverage of construction insurance</p>

Commercial Risk	Minimum revenue guarantee (MRG) Professional/reasonable traffic forecast Inflation-reflecting toll rate Limited cash deficiency support-cost overrun Termination payment
Operation Risk	Reasonable operation budget Maintenance Reserve account (MRA) MRG and termination payment Full coverage of operation insurance

3.6. Characteristics of Incheon Bridge PPI Project Financing

The Incheon Bridge BTO project financing structure was very different from the precedent BTO project financing structures. The summary is as follows;

Table: 15 Characteristics of Incheon Bridge PPI Project Financing

Items	Incheon Bridge PPI	Precedent PPIs
Project Implementation	Two phase concession agreement for project implementation: - Phase 1: 2003-June concession agreement : agreement on what-to dos for phase 2 - Phase 2: 2005-May amended and restated concession agreement: Entering the Phase 2 agreement after the EPC open bidding and commercial package.	No phase distinction for project implementation : single phase concession agreement for project implementation
EPC contractor and EPC amount determination	Competition selection of EPC contractors Fixed price (nominal value) lump sum bidding price	No competition selection of EPC contractors Contract (real value) price with CPI inflation escalations
Project Development/Developer	Professional BTO development firm developed the Project. Financial investors involved the project development one Phase 2 agreement,	EPC contractors developed the BTO projects mainly for the purpose of EPC contract
Shareholders composition	Shareholders =Developer=No EPC contractors : EPC contractors- No shareholder participation Financial investors' participation: First BTO project with financial investors being shareholders at the concession agreement stage.	Shareholders=EPC contractor :All EPC contractors- shareholder participation
Project Risk management	Hiring the international project management firm for comprehensive project risk management as concession	No concession requirement regarding hiring the project management firm for project risk management.

	requirement	
Throughout Traffic Review	The third party traffic review before entering the amended and restated concession agreement (phase 2) in connection with toll level and government subsidy determination.	No traffic review process

4. SUMMARY

The public sector's limited resources have been leading to utilizing an alternative option by encouraging private capital investment in infrastructure facilities. The PPI option has been one of effective procurement method of infrastructure-type investment requiring design, building, financing and operating in a single contract and transferring part of the risks and responsibilities to the private sector with less projects costs and improved service quality compared to the conventional public procurement.

The PPI procurement can mobilise more capital than government alone through project financing by inducing institutional investors such as pension fund and other public funds as well as private investors to PPI market, helping circular flow of money by inviting private capitals.

The Incheon Bridge PPI project financing is considered as a pivotal case in Korean BTO PPI markets in term of concession project implementation, shareholders composition, and senior/ subordinate debt project debt financing process. The Incheon Bridge PPI project encourages the private sector to utilize its project management, project financing, professional skills, creativity and innovation which contributes the development of the PPI Market in Korea.

REFERENCES

- [1] Act on Participation Investment in Infrastructure (January, 1999) and Amendment to the PPI Act (January, 2005)
- [2] Enforcement Decree on PPI Act (January, 2005)
- [3] Annual PPI plan and PPI Guidelines (January 2005)
- [4] Act on Promotion of Private Capital into Social Overhead Capital Investment (August, 1994)
- [5] Concession agreement (June, 2003) and Amended and Restated Concession Agreement (May, 2005)
- [6] Credit Facilities Agreement in connection with the limited recourse financing for Incheon Grand Bridge Project (June, 2005)
- [7] Shareholders Subordinated Loan Agreement In respect of the Incheon 2nd Bridge Project (June, 2005)
- [9] Project related documents and financing related documents